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SPECIAL SPECIFICATION
SECTION 01065-S
ENVIRONMENT, SAFETY, AND HEALTH
FOR MESA CONSTRUCTION CONTRACTS

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PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Section Includes: Requirements and guidelines in performance of MESA construction work concerning protection of environment and property, and safety and health of Contractors, Sandia National Laboratories (SNL) and DOE employees, visitors to SNL, and members of the public.

B. Related Sections: Refer to the following sections for related work:

1. Division 1, Section 01505S "Construction Waste Management."

2. Division 2, Section "Selective Demolition."

3. Division 16, Section 16475-S "Primary System Safety Requirements."

1.02 REFERENCES

A. American National Standards Institute (ANSI)

Z41 Personal Protection - Protective Footwear

Z89.1 Industrial Head Protection

B. American Society of Mechanical Engineers (ASME)

B30.5 Mobile And Locomotive Cranes

C. Code of Federal Regulations (CFR)

29 CFR 1926 Title 29-Labor, Part 1926-Safety and Health Regulations for Construction

29 CFR 1910 Title 29-Labor, Part 1910-Occupational Safety and Health Standards

D. Environmental Protection Agency (EPA)

832-R-92-005 Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices

E. National Fire Protection Association (NFPA)

70 National Electrical Code

70-E Standard for Electrical Safety Requirements for Employee Workplaces

1.03 DEFINITIONS

A. Sandia Contracting Representative (SCR): Person authorized to act as official representative of SNL for specific purpose of administering Contract, including payment authorization and approval for change orders. SCR is the only person who may legally obligate SNL for expenditure of funds, change scope, change level of effort, change terms and conditions, negotiate, and sign documents legally binding SNL commitment. Obligations or promises, implied or expressed, by SNL personnel other than the SCR do not bind SNL in any manner.

B. Sandia Delegated Representative (SDR): Person(s) named in the Contract who is authorized to act as official representative of SNL for the specific purposes identified in the Contract. SDR shall not exercise supervision over Contractor's employees.

C. Sandia Construction Observer (SCO): Person(s) authorized to act as official representative of SNL for the specific purpose of acceptance of work in accordance with plans and specifications, coordination of access, scheduling of utility outages, crane inspections, ES&H observations, and securing of permits.

D. Sandia Construction Safety Officer (CSO): Person(s) authorized to act as official representative of SNL for the specific purpose of review and observation of Contractor's safety plans and performance.

1.04 SUBMITTALS

A. Contract-Specific Safety Plan: Submit in accordance with requirements of Quality Assurance Article (see Part 4, Section 4.0).

B. Safety Plan Addendum: Submit modification to Contract-Specific Safety Plan, or Activity-Specific Safety Plan if required to address hazards not previously identified in Contract-Specific Safety Plan.

C. Pollution Prevention Plan: Submit for construction sites greater than five acres, in accordance with requirements of Quality Assurance Article.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with applicable environmental, safety, and health laws, rules and regulations, as amended, of the Federal, State and local governments, the Department of Energy (DOE) and SNL.

1. Adhere to safety rules and regulations, access restrictions, and emergency egress procedures which are unique to Contractor's work at SNL-controlled premises as defined in the following sections of this specification, Contract documents, and as determined through consultation with SDR.

B. Single-Point-of-Contact: Provide on-site individual authorized to act on behalf of their company, and who has authority to take immediate corrective actions. Single-point-of-contact shall conduct and document weekly safety inspections of work site.

C. Excavation/Penetration Permit: Obtain permit from SDR or SCO (see Part 4, Section 11.0).

1. Obtain permit prior to start of the following activities:

a. Digging, excavation, saw-cutting, drilling, coring, or trenching into existing ground, concrete pads, asphalt or other surfaces to depth greater than twelve inches (305 mm), including repair of irrigation sprinkler lines.

b. Penetration of poured concrete structural building floors and walls greater than two inches (50 mm) in depth.

c. Penetration beyond initial slab into subsurface soil.

d. Scraping, blading, or excavation of any area previously undisturbed or that appears to be undisturbed, such as areas covered by native vegetation and blading or improvements to previously unimproved roads or paths.

2. Area to be excavated or penetrated shall be shown on Drawing, and identified in the field. Submit permit requests for excavations at least two weeks prior to start of excavation. Notify SCO as soon as practical prior to start of penetration and saw-cutting activity to allow for adequate Drawing and site review.

3. Excavation/Penetration Permit process involves environmental, cultural, and ecological site review to determine if environmental site impacts will occur due to activities related to performance of Work.

4. Permit is task-specific. Confine penetration or digging only to those areas identified on permit.

D. Hot Work Permit: Prior to cutting, welding, open-flame burning, or use of tar kettles and roof solvents, obtain Hot Work Permit from a fire protection contact in SNL's Facilities ES&H Team. Display issued permit in prominent location at work site (see Part 4, Section 10.0).

1. Prior to receiving site-specific Hot Work Permit, personnel engaged in the following activities shall view fire safety awareness videos administered by fire protection personnel in SNL's Facilities ES&H Team. These videos are approximately one (1) hour in combined length.

a. Fire watch
b. Kettle operator
c. Propane/oxy-acetylene torch operator
d. Hot air welder

2. Personnel engaged in fire watch activity shall have demonstrated proficiency (through certification) in fire extinguisher use.

3. For work, which will impair or inadvertently activate fire protection detection or suppression system, notify the fire protection contact in SNL's Facilities ES&H Team prior to the start of activity.

E. Surface Disturbance Permit: For surface disturbance activities affecting land area greater than 3/4 acre, sandblasting and other surface preparation, or demolition of any building containing over 10,000 sq. ft. of total area, comply with requirements of Division 1, Section "Selective Demolition."

F. Storm Water Control: For construction sites greater than five (5) acres, develop and submit Pollution Prevention Plan to SDR for review prior to construction activities. Pollution Prevention Plan shall follow EPA 832-R-92-005, which addresses silt control and other possible storm water impacts. Further guidance may be obtained from SDR. Contractor shall report spills and accidental releases to storm sewer system immediately to SDR.

G. Sanitary Sewer Discharge: Notify SDR of planned discharges to sanitary sewer system, other than routine sewage, prior to discharge. SDR will review planned discharge, and coordinate authorization from the Sandia Water Quality organization. Report spills and accidental releases to sanitary sewer system immediately to SDR.

H. Surface Discharge: Notify SDR of planned surface discharges, prior to discharge. SDR will review planned discharge, and coordinate authorization from Sandia Water Quality organization. Report spills and accidental releases immediately to SDR.

I. Underground Storage Tanks (UST): UST installation and maintenance operations shall comply with New Mexico Environment Department (NMED), UST Bureau requirements. NMED UST Bureau-Certified Contractor shall perform work activities on UST's.

1. If unanticipated UST is discovered during construction activity, contact SCO for notification to SNL's Facilities ES&H Team.

1.06 INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS)

A. General: SNL is committed to performing work safely, ensuring the protection of employees, the public, and the environment. To help meet these commitments, SNL employs an integrated safety management system, which provides the framework for this specification, and the requirements established for contracted construction and service work at SNL.

B. ISMS Guiding Principles: The following guiding principles are the cornerstone of an effective safety management program, and shall be reflected in the Contractor's demonstrated ability to perform work at SNL.

1. Personnel know and understand their roles, authorities, and accountabilities.

2. Work is planned with appropriate rigor.

3. Hazards are identified, and properly controlled through engineered or administrative processes.

4. Correct standards are identified, and applied to safe work practices.

5. Work is performed by trained, qualified personnel.

6. Safe work processes are evaluated and improved.

C. Apply ISMS work cycle shown below at task or activity level for construction or service assignments. Depending on size and complexity of work activity, some elements of work-planning phase may not formally be used.

1. Refer to Section I of the Contract for specific requirements for pre-bid visits and conferences. Contractor has the responsibility to visit the Project site, and submit questions regarding ES&H related issues, which may affect his cost or performance, prior to bid.

2. Table 1 provides requirements for demonstrating effective safety management during execution phase of this Contract.

TABLE 1
ISMS Contractor Requirements

Work Cycle Phase	Contractor Requirements
Work Planning *	
Review of SNL Jobsite Hazard Evaluation Checklist	• Understand Pre-existing conditions which may affect worker safety and health
Pre-Bid Site Visit	• Identify potential job and site hazards and hazard combinations
Pre-Bid Conference	• Resolve emergency preparedness responsibilities and any other safety issues not addressed in the request for quote
Bid Submission	• Commit adequate level of resources for job conditions
Work Hazard Analysis	
Job Safety Analysis	• Evaluate job-specific and site-specific work requirements and work hazards
SNL Hazard Information	• Request and incorporate hazard identification and hazard control information supplied by SNL
Job Task Analysis	• Resolve job assignment and personnel fitness issues
Work Hazard Controls	
Safety Program	• Identify company safety management policies, processes and procedures
Contract Safety Plan	• Address all contract-specific safety requirements and protective measures, including combined requirements and combined controls
Pre-Construction conference (for construction activities)	• Participate in pre-construction meeting with intent of understanding conditions / restrictions identified on the hazard evaluation checklist.
Hazard Awareness	• Discuss work hazards and controls with employees and sub-contractors prior to initiating new work and at work site meetings.
Work Authorization	• Ensure that safety plans/corrective action plans are reviewed and work is authorized prior to initiating work or corrective actions
Work Performance	
Job Supervision	• Ensure that all workers have appropriate safety supervision by Contractor management at all times
Safety Inspections	• Conduct and document daily workplace inspections, with or without SNL personnel, to identify and correct hazardous conditions and instances of noncompliance with safety plan/requirements
Emergency Response	• Ensure that all personnel at work site can recognize off-normal or unsafe conditions, and know how to respond
Corrective Actions	• Implement interim controls for unsafe or off-normal conditions, including notification of workers and the SDR
Work Feedback and Improvement	•
Self-Assessment	• Identify opportunities for safety process and work performance improvements
Performance Reviews	• Discuss performance strengths and weaknesses with employees and subcontractors
SNL Feedback	• Communicate suggestions for SNL improvements to the SDR

1.07 CONTRACT-SPECIFIC SAFETY PLAN

A. General: Submit Contract-Specific Safety Plan that states the nature of work, potential hazards anticipated, and how these hazards will be mitigated, or how workers will be protected from hazards. Contractor shall incorporate sub-contractor's Contract-Specific Safety Plan into a single Contract-Specific Safety Plan submitted for review and acceptance (see Part 4, Section 4.0).

1. Contract-Specific Safety Plan will be separate, and in addition to Contractor's company Safety Program document on file at Sandia National Laboratories (SNL). Contractor's Safety Program document should provide the information that drives the hazard prevention methods stated in Contract-Specific Safety Plan.

B. Hazard Mitigation or Protection: Conform to requirements of this specification as applicable to the work activity being performed, as well as accepted methods identified in 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively. Mitigation or protection shall meet the intent of 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively. SNL ES&H requirements that exceed the requirements of 29 CFR 1926 or 29 CFR 1910 are identified in this specification.

1. Address hazards that exist at SNL Project site where work will take place. Include hazards identified in SNL Jobsite Hazard Evaluation Checklist (see Attachment A), as well as hazards that are introduced to Project by construction process.

2. Identify means to inform workers of foreseeable hazards and required protective measures, prior to commencement of work on affected construction operation (task) (see Part 4, Section 5.0).

3. Lock Out/Tag Out (LOTO): Incorporate applicable requirements for the lock out and tag out of energized electrical and pressurized systems from 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively.

4. Address emergency action. Contractor shall be responsible for transporting personnel with non life-threatening injuries that require medical attention to local medical facilities identified in plan (see Part 4, Section 2.0).

5. Safety Officer: Identify Contractor on-site safety officer and alternates. Safety officer shall ensure compliance and implementation of Contract-Specific Safety Plan. This individual shall be subject to acceptance by SDR based upon the scope of work, anticipated hazards, and training and experience of the designated safety officer. Safety officer may or may not be the designated "competent person" as prescribed by 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively. The "competent person" is determined by specific technical qualifications, and employer assigned authorities and responsibilities (see Part 4, Section 3.1).

C. Submit Contract-Specific Safety Plan for review and acceptance by the MESA Construction Lead, prior to commencement of on-site work.

1. Keep copy of Contract-Specific Safety Plan on site and available to subcontractors, construction observers, and SNL construction safety personnel.

D. Safety Plan Addendum: Before work activity is performed that involves hazards that were not addressed in original Contract-Specific Safety Plan, submit addendum to Contract-Specific Safety Plan in the form of a modification, or a new activity-specific safety plan for acceptance. New hazards may result from changes to scope of work or unexpected site conditions. Addendum shall identify mitigation or control for new hazard as described in "Contract-Specific Safety Plan" Article above.

1.08 PERSONAL PROTECTIVE EQUIPMENT

A. General: Provide necessary personal protective equipment (PPE) to be used in performance of work.

B. Responsibility: Contractor is responsible for safety of personnel on construction job site, and shall ensure that persons visiting job site comply with these requirements. Ensure that Contractor and sub-contractor employees, and visitors on Project job site wear necessary PPE. Contractor has responsibility and authority to deny access to any person entering a construction site if they do not have appropriate PPE.

C. PPE shall conform to applicable standards, and be in good working condition. PPE shall be appropriate for work hazard to be encountered, and is considered to be the last line of defense against injury or illness.

D. SNL Site-Specific Requirements (see Part 4, Section 8.0).

1.09 HIDDEN HAZARDS PENETRATION

A. General: SNL has adopted a five-step approach in an effort to minimize potential hidden safety hazards from penetrating soil during excavation, saw-cutting concrete slabs and walls, and penetrating surfaces. This process includes: Drawing review, site investigation, detection using instrumentation (as appropriate), use of proper tools, and use of proper PPE (see Part 4, Section 11.0).

B. Workers engaging in penetration activities shall use tools, which are in good working condition and utilize appropriate PPE (e.g. electrically rated gloves, GFCI protection, double insulated tools).

C. To mitigate risk a site investigation utilizing methods that would not penetrate hidden hazards (e.g. visual inspection) shall be performed prior to any penetration into floors, ceilings, roofs, or walls constructed of wood, metal, cinderblock (excluding concrete filled), tile, gypsum, or other similar materials. If hidden hazards cannot be identified through site investigation the SDR shall be notified prior to penetration and appropriate PPE shall be worn during penetration.

D. To mitigate risk, penetration of poured concrete surfaces shall not proceed:

1. To depth greater than two inches (50 mm) without obtaining an SNL Excavation/Penetration Permit and notifying SCO prior to penetration.

2. Without required PPE including approved gloves (rated 600 V minimum), eye protection, and rubber boots as appropriate.

3. Without using double-insulated, GFCI-protected, and properly grounded tools.

1.10 MEDICAL/HEALTH PROTECTION

A. Emergency Action: For life-threatening injuries or illnesses, immediately call for medical assistance by dialing 911 on SNL telephone, or (505) 844-0911 on outside/ cellular telephone (see Part 4, Section 2.0).

1. Post medical and non-medical emergency telephone numbers conspicuously at Project site. Ensure that all employees are aware of medical and non-medical emergency telephone numbers. Placards with emergency telephone numbers can be obtained from SNL construction office.

2. Transport personnel with non life-threatening injuries or illnesses that require medical attention to Contractor's identified medical facility.

3. Electrical Shock: Accompany any employee receiving electrical shock for immediate medical attention to the SNL Medical facility during standard working hours, no matter how minor the shock appears. For non-standard hours, seek medical attention in off-site facility. Notify SCO or SDR immediately after transporting individual to SNL Medical.

4. Notification of Accidents, Injuries, or Illnesses: Submit SF 2050P "Report of Occupational Injury/Illness" to SDR within 24 hours. See Attachment C.

   a. Non-Emergency Medical Incident: Notify SDR or SCO within 24 hours.

   b. Serious or Life-Threatening Accident or Illness: Notify SDR or SCO immediately after taking emergency action.

B. Substance Abuse Prevention and Testing: Use of drugs (including misuse of prescribed substances) or alcohol on site shall be grounds for removal of individual from work site, and may include other corrective action including Contract termination.

C. Radiological Safety: Employee may not enter area that contains posted radiological sign, signified by radiation symbol on yellow background with black or magenta markings, without prior authorization and SNL-provided training appropriate for radiological hazard.

1. If work is required in posted area, and specific written instructions have not been issued, do not enter area. Contact SDR or SCO for instructions.

2. For performance of Work in posted radiological areas, ensure the following:

   a. Jobsite Hazard Evaluation for work activity performed in radiological areas.

   b. Employees understand and follow Jobsite Hazard Evaluation requirements.

   c. Obtain Radiation Work Permit (RWP), when required by Sandia Radiation Protection Department., and understand and follow provisions and requirements.

d. Employees shall be current on radiological training required for site or activity (e.g. General Employee Radiation Training - GERT, RAD Worker I, RAD Worker II).

e. Employee shall be 18 years of age or older.

f. Comply with Contract requirements for work in radiological areas.

g. Comply with Contract-Specific Safety Plan for work as reviewed by SNL.

3. Dosimetry: Workers with appropriate training, and who have elected to work in radiological areas may be required to participate in SNL's external and internal dosimetry monitoring program. Contractors participating in the Dosimetry Monitoring Program shall ensure that their film badges are current. Badges must be returned to SDR for exchange by last day of quarterly expiration date. Failure to exchange in a timely manner may result in loss of film badge.

4. Each project involving use of accountable radioactive source or radiation generating device (RGD) requires prior approval by SDR and SNL's Radiation Protection Department. Examples of such devices include, but are not limited to, soil testing densometers and XRF analytical devices for lead detection. See Attachment B.

1.11 SUSPENSION OF WORK

A. General: All employees, contractors, and visitors have responsibility and authority to suspend inappropriate or unsafe work activities when those activities present clear and imminent danger to employees, contractors, visitors, the public, or the environment. Personnel may suspend activities they observe or in which they are a participant, if they believe the activity presents an imminent danger.

B. Upon receiving suspension of work request (oral or written), immediately cease activity, and notify SCO or SDR. Obtain name and telephone number of person requesting suspension, and reason for suspension of work. Work shall not continue on that activity until issue has been resolved.

1. SCO or SDR may restart activity only after review and approval of oral or written response submitted by Contractor.

C. Stop Work Order: Stop work order that affects crew for period greater than one (1) hour shall be followed by issuance of formal written Stop Work Order. Work may be restarted only with written work release from SCR. Stop Work Order shall include the following information:

1. Date and time when work was stopped.

2. Reason for work stoppage.

3. Requirements for Contractor to resume work.

4. Date and time when SNL expects corrective actions to be completed, if required.

D. Work Release: SCR shall provide written work release that includes the following:

1. Reference Stop Work Order

2. Reason for work stoppage

3. Conditions for restart of activity.

4. Specified date and time when work may resume.

1.12 WASTE MANAGEMENT AND DISPOSAL (see 4.09)

A. General Requirements: Waste generated during work activities is considered solid waste, and may be regulated as hazardous waste. Property items and equipment that may be re-reused for their intended purpose are not considered waste and shall be managed as U.S. Government Property.

B. Construction Debris: See Special Specification 01505S, Section "Construction Waste Management."

C. Residue Material and Equipment: Intact and dismantled equipment and material removed during the work activity shall remain the property of the Government. If the equipment and material is not reused in the performance of the project, the Contractor shall manage it as residue material and equipment. All residue material and equipment shall be staged by the contractor and evaluated for hazardous and radioactive contamination by SNL personnel before being delivered to the reapplication yard.

D. Empty Containers: A container that held any chemical (including cleaning products) or hazardous material, except a substance identified as an acute hazardous waste, is defined as an empty container if both of following criteria are met:

1. All material has been removed that can be removed using the practices commonly employed to remove material from that type of container, such as pumping, pouring, or aspirating, and

2. No more than 3% by weight of the total capacity of the container remains in the container.

3. Containers with capacity of 5 gallons or less that meet above criteria may be thrown in trash. Empty containers with capacity of greater than 5 gallons shall managed as chemical waste. Those containers shall be marked with words "Empty Container" and disposal request number. Containers that held acutely hazardous substance shall be regarded as hazardous waste.

E. Fluorescent Lamps: Fluorescent and incandescent light bulbs shall be removed from light fixtures and managed as Chemical waste.

F. Light Ballast: Light fixtures with leaking ballasts or evidence of previous leaking ballasts shall be double bagged or wrapped and disposed of as PCB containing chemical waste. Ballasts that are not clearly marked “NON-PCB” shall be removed from the fixtures and managed as PCB containing waste. Non-leaking ballasts that

are clearly marked "NON-PCB" may be left in the fixtures and managed as residue material.

G. Oil Containing Equipment: Equipment containing oil or other petroleum products shall be drained of oil, and managed as residue material. drained oil shall be managed as chemical waste.

H. Chemical Waste/Hazardous Waste: SNL manages chemical wastes as regulated wastes. This designation applies to all chemical wastes, used oil, asbestos containing wastes, and PCB containing wastes as examples. Due to regulatory liability, SNL assumes responsibility for management and disposal of chemical wastes. Chemical wastes shall be managed as hazardous waste, unless specific guidance is provided in Contract. Coordinate hazardous chemical waste disposal through SNL's Facilities ES&H Team. The procedure for disposal of chemical/hazardous waste is as follows:

1. Fill out appropriate label and information on container, full date, disposal request number, etc.

2. Fill out Chemical Waste Disposal Request (CWDR) form, and submit to SDR's designee within 90 days of waste accumulation start date or before volume limit (55 gallons (208 L)) is anticipated. CWDR forms are available from SNL's Facilities ES&H Team.

3. Ensure compliance with storage requirements until personnel from SNL Waste Operations remove waste.

I. NORM Materials: Naturally-occurring radioactive materials (NORM) used in commercial products that have measurable radioactivity above SNL established policy (which includes State of New Mexico established limits), shall be managed as radioactive waste when declared waste, and is not deemed for Reapplication. Some examples are:

1. Chemicals with naturally-occurring radioactive material

2. Ceramic insulators (with some exceptions)

3. Glass-containing thorium, or uranium for coloring purposes

4. Smoke detectors

J. Radioactive Waste: Material that is found to have detectable radioactivity above SNL free-release limits shall be managed as radioactive waste. Store and dispose of radioactive waste in accordance with applicable federal, state, and local regulations to minimize impact of waste on personnel, public, and environment.

1. Before removal from the work location, SNL radiation protection technicians shall survey waste generated from Radiological Management Areas.

K. Mixed Waste: Residue or waste that is found to be both hazardous and radioactive shall be managed as mixed waste through Sandia Radioactive and Mixed Waste Management Organization. Mixed waste can only be generated with written SNL approval.

L. Transportation of Hazardous Waste: Coordinate transportation of hazardous and chemical waste or material on SNL premises through SNL's Transportation Department. Coordinate transportation of chemical or hazardous waste or material from off-site SNL-controlled premises (leased space) to on-site locations through SNL's Transportation Department.

1.13 WORK SITE IDENTIFICATION (see Part 4, Section 2.0)

A. Construction Safety Bulletin Board: Provide and maintain weathertight safety bulletin board in visible location, not less than 3 feet by 5 feet in size. Bulletin shall be used only to post official announcements.

1. For MESA projects, post the following documents and signage:

   a. Equal Opportunity Posters

   b. Employment Standards

   c. Project Davis-Bacon Wage Decisions

   d. DOE Safety Posters

   e. Contractor's Accident Prevention

   f. Fire Prevention

   g. Emergency Phone Numbers

   h. First Aid Plan.

   i. Company Name

   j. Superintendent Name

   k. SNL Contract Number

   l. SNL Contact Names and Phone Numbers

2. An SNL-reviewed copy of Contractor's Contract-Specific Safety Plan must be readily available at Project site.

B. Hazard Identification Signage and Barricades: Provide appropriate hazard identification and barricades in accordance with 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively, to warn Contractor personnel and visitors of specific work hazards. Prior to start of work, ensure personnel on site know and understand SNL signage that may be present on site during performance of work.

1. Use flagging and tape barricades only for temporary (less than 24 hour) protection, unless otherwise accepted by SCO. Use orange safety fencing or snow fencing around excavations and trenching. Fencing shall be minimum 4 feet- (1.2 m-) high and secured vertically every 10 feet (3 m).

2. Provide signage in compliance with 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively. Protect unattended sites with applicable signs and barricades at all times.

C. Documentation: The following documents shall be available for review at each Project site.

1. Project plans, specifications, and work authorizations

2. All required permits.

3. Contract-Specific Safety Plan

4. Material safety data sheets for on-site chemicals.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 JOBSITE HAZARD EVALUATION

A. General: This work site has been evaluated for environmental, safety, and health concerns or conditions that pre-exist, and may impact methods and procedures in performance of work.

B. Jobsite Hazard Evaluation: Does not include hazards that may be introduced during execution of work necessary to meet Contract "Statement of Work." Hazards introduced in performance of work shall be evaluated and mitigated in accordance with existing federal, state, and local regulations, including 29 CFR 1926 and 29 CFR 1910 for construction and service work, respectively, and applicable provisions of this specification.

1. Comply with restrictions or conditions specified for each identified hazard. Do not proceed without full knowledge and understanding of these conditions. If corresponding description, or identified paperwork or permit is not attached for identified hazard, contact SDR or SCO immediately.

C. Identified Pre-Existing Conditions: Take precautions for pre-existing conditions identified on job site, per Jobsite Hazard Evaluation checklist attached in Contract documents.

1. Comply with restrictions or conditions specified for each identified hazard. Do not proceed without full knowledge and understanding of these conditions. If corresponding description, or identified paperwork or permit is not attached for identified hazard, contact SCR immediately.

D. Unidentified Hazard: If hazard is encountered during performance of Work which has not been identified, contact SCO or SDR for specific requirements prior to performing work which may impact condition or concern.

3.02 GENERAL PROJECT WORK PRACTICES (see Part 4, Sections 4.11 through 4.14)

A. Mobile Cranes: Prior to start of activity using mobile crane, notify SDR forty-eight hours in advance of scheduled arrival time. This notification allows the SCO time to review the project documentation, and to conduct an inspection of the crane coming onto SNL property (see Attachment G).

1. Crane inspection by the SCO shall include, but not be limited to verification of license or training, load charts, inspection reports, and physical verification of ropes, slings, undercarriage, outriggers, and boom. Additionally, SCO shall document review of crane placement, and lifting plan or sequence with the Contractor and Contractor's crane operator.

2. Provide proof of inspection and load tests in accordance with 29 CFR 1926 and ANSI B30.5.

3. Crane operators shall be properly trained and experienced in operation of crane or hoisting device. Crane operator shall have one of the following in possession during crane inspection and operation:

   a. Valid State of New Mexico Crane Operator's License

   b. Certification that indicates completion of an industry-recognized, in-house training course based on American National Standards Institute (ANSI) standards for hoisting operators, and who is employed by the entity that taught the training course or contracted to have the training course taught.

4. SNL requires compliance with the Federal Aviation Administration boom height restrictions. Crane boom height restrictions are initiated by the Contractor and based on distance from the runway of the "Albuquerque International Airport." The Contractor shall initiate a "Request for Aeronautical Study" to be completed by the Federal Aviation Administration. Form 7460-1 "Notice of Proposed Construction of Alteration" shall be submitted by the Contractor to the FAA, South West Region, Fort Worth, Texas, 817-222-5534.

B. Contractor's Staging Area: SDR shall approve staging area locations prior to utilization. Stored vehicles and equipment, intended for use on SNL property, shall be in serviceable and safe operating condition. Immediately repair, or remove defective or unsafe equipment from SNL property until proper repairs are completed.

1. Staging area shall not be used for storage of hazardous materials not intended for timely use (within 30 days) for work activity. Remove or dispose of excess hazardous material in accordance with "Waste Management and Disposal" Article.

C. Temporary Buildings/Storage Areas: Obtain approval from SDR for location of temporary buildings and storage areas prior to scheduled delivery of building or material.

D. Overhead Work: Schedule work required to be performed above occupied areas for non-standard hours, unless specific and approved precautions including signage, barricades, occupant consent, and any other precaution deemed necessary by SNL

is provided in advance of operation. Final approval for work in occupied areas during normal work hours must be received from SDR.

E. Lock Out/Tag Out (LOTO): Notify SCO minimum of 24 hours in advance of activity requiring utility or equipment shutdown.

F. Confined Space Entry: Comply with provisions of 29 CFR 1910.146, "Permit-Required Confined Spaces," for access to permit-required confined spaces. Contractors are responsible for developing and issuing confined space entry permits. Confined spaces include, but are not limited to: storage tanks, vessels, vaults, manholes, sewer pipes, boilers, tunnels, and in some instances excavations.

1. Permit spaces are typically labeled in the following manner: "DANGER Confined Space - Entry by Permit Only," or similar type language. Non-permit spaces are typically labeled in the following manner: DANGER Confined Space - Entry by Authorized Personnel Only". In questionable areas that appear to qualify as a confined space, the absence of appropriate signage shall not be interpreted to mean that the area is not a confined space.

2. All confined spaces, permit-required and non-permit, at minimum shall be tested first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors prior to entry. Atmospheric monitoring for the duration of the activity is also required.

3. Personnel making a confined space entry shall follow the procedures established in Attachment D, "Rescue of Personnel in Confined Spaces at SNL/NM" in establishing their confined entry plan. A "Confined Space Permit Sign In/Sign Out Sheet," provided as Attachment E, is used to maintain an accurate, real time tracking of entrants for emergency response. The use of Attachment E only becomes necessary when the permit extends beyond a single day, or different entrants other than those initially identified on the permit are involved in the entry activity. Deviation from the procedures shall require an explanation for each deviation.

4. If a "Hazardous Atmosphere" as defined by OSHA (<19.5% oxygen or >23.5%; LEL > 10%; toxics > allowable) is detected through monitoring, **NO ENTRY IS ALLOWED**. Contact the SDR and Construction Inspector immediately.

5. Inspection shall be performed on all equipment prior to use to ensure proper working condition.

6. Personnel shall perform a function test ("field calibration") on the atmospheric monitoring instrumentation immediately prior to use to ensure proper working condition.

7. Contractors entering permitted confined spaces shall submit a written copy of their plan that complies with provisions stipulated in 29 CFR 1910.146. The written plan shall also include the following information:

   a. Specific location of the confined space (building, room, space type; if the space is outside, indicate the direction [NW, SE, etc.] from the closest building)

b. Identification of individual or personnel serving as the Entry Supervisor (for purposes of overseeing the entry activity), Entrant, Attendant, and Atmospheric Monitor

c. Identification of Competent Person

d. Identification of communication equipment used to contact emergency personnel, and, means used to communicate between the Entrant and Attendant

e. Identification of retrieval equipment and specific conditions of use

f. Method used to coordinate entry operations with the host employer when employees of host employer, Contractor company, and/or additional contractors will be working in or near a permit space

g. Method used to communicate the discovery of any hazards encountered in the permit space during operations

G. Electrical Equipment Safety: Provide Underwriters' Laboratories (UL) or Nationally Recognized Testing Laboratory listed/labeled electrical devices and equipment per NFPA 70 and 70-E, and Occupational Safety and Health Administration requirements.

1. Comply with current National Electric Code provisions, and provide listed ground-fault circuit interrupter (GFCI) protection for 120-volt, single-phase, 15- and 20-ampere receptacle outlets on work sites which are not part of permanent wiring of building or structure, and which are in use by employees.

2. Receptacles on ends of listed extension cords are not part of permanent wiring, and shall be protected by GFCI whether or not listed extension cord is plugged into permanent wiring.

3. Extension cords shall be free of cuts and exposed conductors. Cord caps and receptacle replacements shall be made with approved materials rated for conductors. Provide GFCI protection for extension cords, between power source and employee.

4. Temporary Lighting and Emergency Lighting: Provide adequate lighting to maintain minimum illumination set by 29 CFR 1926.26 and Subpart D. Install emergency illumination (automatic battery-powered lights) in areas that would be dark during power failure (i.e. basements, non-windowed buildings). Lighting systems shall not have GFCI protection.

H. Electrical Work On or Near Exposed Energized Parts: Applies to work involving installation or alteration of systems such as branch circuits, panelboards, motor control center distribution, distribution transformers, switchboards, bus ducts, disconnects, lighting terminal cabinets, and other building distribution type systems.

1. Exposed energized parts are defined as items located within “limited approach boundary” as defined by NFPA 70-E, Table 2-1.3.4.

2. Working on energized parts is defined as coming in contact with live parts with the hands, feet, or other body parts, with tools, probes, or with test equipment, regardless of the personal protective equipment a person is wearing.

3. Work near exposed energized parts is any activity inside “limited approach boundary.”

4. When working on or near energized parts in hallway, corridors, or other area used for passage, maintain working space barrier with caution tape and signage. Working space boundary for barriers shall be as defined at the “limited approach boundary.”

5. Do not leave exposed energized parts unattended in area occupied by other than construction or service personnel. Do not leave exposed energized parts without providing working space barrier at the “limited approach boundary.”

6. Comply with the following when working on energized electrical parts:

    a. Notify SCO before proceeding with work.

    b. Electrical work on energized electrical parts shall be performed by qualified individual with second qualified person available.

    c. As a minimum, individuals performing work on energized electrical parts shall be either New Mexico licensed electricians, or State Certified Apprentice in their last year or journeyman electrician who has been trained by recognized trade or union training program.

    d. Individual shall be knowledgeable and experienced in working with specific type of electrical circuits on which energized electrical work is to be performed. See Division 16 "Primary Systems Safety Requirements" for additional requirements.

    e. Request authorization from SDR prior to working on exposed energized parts.

    f. Only use approved insulated tools, including fish tapes, approved for contact with energized parts when distance to exposed energized parts is less than one foot (305 mm).

    g. Use appropriate personal protective equipment as required. The level of personal protective equipment to be used shall be determined by the requirements identified in NFPA 70-E, Part II, “Safety Related Work Practices,” Chapter 3, “Personal and other protective equipment.” Equipment may include: safety glasses, face shield, insulated gloves, and fire-resistant clothing such as cotton, denim, flannel or other appropriately rated fire resistant clothing. Clothing shall cover entire body from neck to hands and feet.

    h. Provide team of two personnel for work on energized parts.

PART 4 – MESA SPECIFIC SAFETY AND HEALTH REQUIREMENTS

4.01 INTRODUCTION

Part 4 of this specification is MESA construction specific. It addresses the following elements in further detail:

- Emergency Readiness, Response and Reporting
- Contractor Safety and Health Program
- Contractor *Contract-Specific* Safety and Health Plan
- Contractor Hazard Assessment
- MESA Site Specific Orientation/Safety and Health Training
- Safety Meetings and Communications
- Personal Protective Equipment
- Hazardous Materials Management
- Fire Prevention
- Excavation, Trenching, and Shoring
- Fall Protection
- Hoisting and Rigging - Crane Safety
- Aerial Lift Training

Following recognition of noncompliance with these safety and health requirements, the MESA SDR shall:

- Notify the contractor of the noncompliance and of the corrective action required. This notice, when delivered to the contractor at the site of the work, shall be deemed sufficient notice of the noncompliance to immediately implement corrective action. (See Attachment H, Sandia Construction Safety Deficiency Notice and Flowchart)

- Exercise the right to issue a suspend-work order stopping all or part of the work if the contractor fails or refuses to take corrective action within the time specified. The order will remain in effect until satisfactory corrective action has been taken.

- SNL/NM and/or DOE has the authority to conduct an accident investigation during and/or after the "stop-work" period, and these stop-work periods may affect some or all portions of the job site.

  Event investigations may occur at the discretion of DOE if the criteria of DOE Order 225.1A, Accident Investigation, are met.

- Deny any claim or request from the contractor for equitable adjustment for additional time or money due to a suspend-work order issued under these circumstances.

- Require the removal from the Project Site of any employee or piece of equipment that is deemed to be unsafe. The contractor's superintendent, ES&H officer or other personnel shall be replaced by the contractor at the direction of MESA SCR/SDR for non-performance of his/her safety duties at no additional cost to the contract. The primary

responsibility for safety and health is the Contractor's and Subcontractor's Superintendent(s)/Foreman(s).

? These elements, are integrated as part of contract language for these projects, and provide the baseline methodology for managing the hazards inherent to the MESA construction work. It also provides a systematic manner that can be easily integrated into the management of other technical aspects of the MESA project(s).

Construction safety and health deficiencies observed on the MESA construction sites(s) shall be initially documented (see OSHA Safety Deficiency Notice Flow Chart [Attachment H]) using the "Sandia Construction Safety Deficiency Notice," form MCS-3. Issuers of this form will be restricted to the MESA Construction Safety Lead, Specific Construction Management Services staff, Lead Project Inspector, Sandia Construction Observers (SCOs), and the Contractor's ES&H Officers(s). Data gleaned from this effort will be compiled by the MESA Construction Safety Lead, used for trending, identification of problem areas dealing with both personnel and process, and contractor safety and health performance (Safety Incentive/Disincentive). This process will be included in the orientation training (see Section 4.061).

4.02 EMERGENCY READINESS RESPONSE AND REPORTING

Emergency Readiness regarding appropriate response and reporting is addressed in this section. It is imperative that the personnel working on the MESA construction project (s) are prepared to respond to emergency situations including KAFB DELTA evacuation conditions in a timely and pre-defined manner. The objectives of this element are to establish appropriate steps to meet that preparedness requirement. Additionally, the process to appropriately report, review, trend and/or investigate events is identified here.

4.021 Emergency/Occurrence Readiness

Emergency readiness procedures shall be prepared by the contractor and communicated through a written emergency action plan (included as part of Contractor's Contract Specific Safety Plan - See Part 4, Section 4.04) to all employees *prior* to beginning work on the project, *and* whenever an employee's roles and/or responsibilities change *or* new employees join the workforce. This training will be one element of the MESA Site Specific Orientation Training Process. The contractor shall establish within their emergency action plan, types of evacuation, and roles and responsibilities with the names or job titles of persons or departments who can be contacted for further information to be used in emergency circumstances.

Additionally, the contractor shall prepare and post throughout their construction site signage that will identify the following:

? Easily understood Emergency Response Guidance (See Section 2.2)
? Emergency phone numbers
? Actual location of the work site (relative to Kirtland Air Force Base), sign locations, and nearest phone locations (i.e., 3rd floor - West side of Bldg.)

The contractor shall designate and train a sufficient number of personnel to assist in the safe and orderly emergency evacuation of employees. The contractor written plan shall be kept visible at the workplace and made available for employees to review. SNL will provide all MESA construction site employees hardhat decals providing emergency phone numbers.

4.022 Emergency/Occurrence Response

All MESA contractors shall participate in and/or conduct emergency drills with MESA site personnel annually, at a minimum. If and when an incident occurs, the incident scene must be preserved and the parties involved, except for any that require medical attention, will be retained to ensure a complete and timely accident information analysis. As soon as practically possible, an initial critique of the event will take place. The MESA Construction Safety Lead and the Sandia Delegated Representative (SDR) shall conduct this critique.

For all Medical Emergencies, personnel shall:

1. Call the 24-hour Emergency Health Services Center phone number 844-0911 for serious illness, injuries, or accidents. (SNL/NM Health Services Center is located in Bldg. 831 on F Avenue).
2. Follow the instructions of emergency personnel who respond to the call.
3. Consider every electrical shock to be an emergency and every victim of a shock on SNL/NM premises shall be evaluated by SNL/NM Health Services. (See specific requirements set forth in Part 1, Section 1.10, (A)(3))

In addition, members of the workforce should assist ill or injured persons and be prepared to provide the following information to emergency response personnel:

- Type of emergency (for example: falls, lacerations, illness, electrical shock)
- Location of the emergency (tech area, building, etc)
- Name, age, and sex of person needing assistance
- Apparent medical condition (for example: bleeding, broken limb, breathing difficulties, unconsciousness)

The contractor shall have the names and locations of their industrial medical providers onsite. For first aid and non-emergency medical care the contractor will transport personnel to their industrial medical provider directly.

Onsite telephone service and/or two way radio systems for reporting emergencies, (i.e., fires, falls, confined space recovery, spills, etc) shall be provided by the contractor and be readily available on the construction site premises. Contractor shall install Emergency Signage identifying location of all MESA Construction site communication devices. In no case shall a construction worker be more than one minute away from an emergency means of communication.

4.023 Emergency/Occurrence Reporting

The contractor shall notify the SDR or SCO as soon as possible but not later than 24 hours of all incidents, injuries, hazards, and/or near misses regardless of how minor. Any additional written

documentation relating to the incident or injury shall be delivered to the SDR immediately upon request. Incidents include those that result in, or could have resulted in, an illness, injury, fire, property damage, or hazardous spill or release while working on the project at this construction site.

The contractor shall be responsible for maintaining documentation of incidents as required by federal, state, and local laws and regulations. The contractor shall provide information to the SDR in order to complete form SF 2050-P, *Report of Occupational Occurrences - Injury/Illness,* (See Attachment C*)* and shall consult their Industrial health care provider for that documentation.

All MESA project personnel (including contractor's and all tiers of subcontractors) shall as a minimum:

- Report any incident that they deem may constitute a problem, concern, failure, malfunction, or deficiency in equipment, process, procedure, or program, or which could result in an adverse affect upon DOE or contractor personnel, the public, property, the environment, or DOE's mission, security, or operations
- Notify the SDR. The SDR is responsible for assuring both the contractor and SNL/NM investigates incidents and identifies root and contributing causes
- Preserve, to the extent feasible, and document evidence of accidents
- Record all first aid cases, OSHA recordable cases, restricted duty cases and lost workday cases, along with the total hours worked on the project (including field labor and office/general/support). These record keeping requirements are directly applicable to all tiers of subcontractors as well, and it is the responsibility of their contractor to assure the responsibility is met.

Note: Some events will require accident investigation directed by the DOE. The Occurrence Management Categorization matrix is derived from DOE M 232.1-1A and includes graduated thresholds for reporting events.

The existing SNL/NM Occurrence Reporting process will be followed. Occurrences will be categorized and owned by Center 1900. Center 1920 Project Manager will be responsible for the management and facilitation of this process.

Each contractor shall be responsible for their own ES&H record keeping, documentation and reporting required by the various government agencies as they apply to their scope of work. Records, documents and reports required, as result of work in this project, shall be maintained and made available to the SDR/SCR and MESA Construction Safety Lead upon request.

The following is a sample list (not inclusive) of records, documents and reports that shall be required to be maintained by the contractor on this project:

- OSHA Log of Occupational Injuries and Illnesses (OSHA 300)
- OSHA Training Records
- SNL/NM Equal Opportunity Employer
- Davis Bacon Act
- MSDS Inventory

4.03 CONTRACTOR SAFETY AND HEALTH PROGRAM

The Contractor's Construction Safety and Health Program shall at a minimum, address the following elements in detail:

- Management leadership and Employee participation
- Hazard identification and assessment
- Hazard prevention and control
- Information and Training
- Periodic evaluations of program effectiveness

The appropriate MESA Construction safety personnel will review the Contractor Safety and Health Program during the Best Value Source Selection Process.

4.031 Contractor Environment, Safety, and Health Officer

Before beginning any phase of work, each contractor is required to submit the resume(s) of, and name(s) and qualifications of those personnel that will be identified as their Environment Safety and Health (ES&H) officers. These individuals shall be considered "Key Personnel" positions.

Each contractor shall assign ES&H officers to the project, in accordance with the level of the risk associated with their work at the site. A minimum of one fully dedicated ES&H officer shall be required on each MESA building project (i.e., WIF, MicroLab, and MicroFab). The ES&H officer shall have no other responsibilities other than those associated with ES&H. The ES&H Officer or his/her backup shall be resident to the particular construction site/office during all construction work activities.

The contractor ES&H Officer shall be responsible for:

- Daily site visits and the written documentation to support findings, observations, good safety practices, and any corrective action
- Coordination/implementation/documentation of:
  - Contractor Safety and Health Program, which includes all subcontractors tier's Contract Specific Safety and Health Plan
  - Contract Specific Safety and Health Plan
  - Two-week look ahead process
  - Daily Safety-based work plan process
- SNL expectations of daily site visits by ES&H officers includes but is not limited to inspections of:
  - PPE
  - Crane Inspections
  - Good Housekeeping
  - Permits (Dig, Hot work, etc.)
  - Proper setup and use of equipment
  - Direct feedback to workers on safety performance
- Interface with MESA SDR, MESA Construction Safety Lead, Construction Management Personnel, Inspection Lead, Construction Observers, and SNL/NM FESH

Contractor ES&H Officers shall have the following minimum qualifications:

- Five (5) years of construction experience, and
- Three (3) years of construction safety experience (over 50% of time where safety is the primary duty[ies]), and
- Successful completion of OSHA 30-hour training (or OSHA 500 certified trainer)

(or)

- Certified Safety Professional credential with Construction Safety Specialty Certification

In no case shall this requirement for dedicated project safety and health personnel relieve the contractor construction superintendent of full and complete responsibility for compliance with all project safety and health requirements.

4.04 CONTRACTOR - MESA CONTRACT SPECIFIC SAFETY AND HEALTH PLAN

After award of contract and prior to commencing any work on the project worksite, the contractor shall prepare and have accepted through the MESA Construction Safety Lead a written contract specific safety and health plan (separate from Contractor Construction Safety Program document), which addresses requirements identified in Part 1, Section 1.07 Additionally it shall include the following:

- Clear identification of the contractor as the "Controlling Contractor" in regards to the OSHA Multi-employer Worksite Policy
- Statement of contractor construction safety and health policy
- Employee rights and responsibilities
- Identity of construction superintendent, the Contractor ES&H officer and other construction contractor personnel to be assigned safety and health duties on the worksite, their qualifications, and their respective duties. The plan shall also identify any other equally qualified individual(s) the contractor proposes to authorize to act during periods of construction superintendent and ES&H officer absence
- List all anticipated project phases, as well as annotation of those project phases for which SNL-prescribed safety and health standards or the construction contract require that protective measures be designed, inspected, implemented or approved by a Professional Engineer or other qualified person (i.e., fall protection systems)
- Plan and methodology for the oversight of subcontractors and suppliers
- Plan and methodology for incorporation of subcontractor site specific safety plans into this plan
- Proposed format and methodology for performing and documenting Daily Safety-Based Work Plan (See Part 4, Section 4.052)
- Proposed format and methodology for performing hazard analyses
- Plan for worksite safety and health orientation and continued safety training
- Plan for Safety-Based Task/Work Plan Training (See Part 4, Section 4.053)
- Plan and safety methodology for the transportation of workers from SNL/NM designated parking area to the worksite, if required

- Incentive/disincentive programs, processes, and procedures for personnel/subcontractors
- Disciplinary procedures for each level of personnel (superintendent, foreman, supervisor, worker) for noncompliance with this plan
- Alcohol and drug abuse policy
- SNL (Spec 01065) safety and health policies, programs, and procedures applicable to the project (e.g., confined space, lock out/tag out), and methodology for implementation and oversight of subcontractors/suppliers compliance
- Procedures for interfacing with other site contractors on safety and health issues
- Project hazard communications program (refer to 29 CFR 1926.59)
- Project hazards and the applicable policies and procedures for addressing these hazards, and their controls
- Plan and methodology for maintenance and housekeeping of the construction site and laydown areas
- Use, maintenance, and acquisition of personal protective equipment required on the project worksite (e.g., hard hats, eyewear, and protective footwear)
- Emergency Action Plan to include first aid and medical response (See Part 4, Section 4.02)
- Fire prevention and control
- Emergency response procedures to include local warning and evacuation systems (addressing Part 4, Section 4.02 of this document)
- Procedures for formally reporting or correcting unsafe conditions or practices throughout the site
- Procedures for reporting and investigating accidents and incidents
- Project safety and health record keeping procedures
- Maintenance of and employee access to exposure monitoring data and medical records

4.05 CONTRACTOR HAZARD ASSESSMENT

- The contractor shall submit for acceptance by the MESA Construction Safety Lead, a schedule driven Hazard Assessment with Identified Controls Plan covering the overall construction project work scope.
- The Contractor's ES&H Officer shall be responsible for the implementation of the Hazard Assessment and Controls Plan. Changes to this plan during construction shall be submitted to the MESA Construction Safety Lead for acceptance. If a change is going to introduce new hazards, then a hazards assessment shall be performed that would identify any control(s) that would be incorporated into the Contractor’s Contract Specific Safety Plan. Those controls shall be submitted as an addendum for acceptance by the MESA Construction Safety Lead.

4.051 The Contractor Two-Week Look Ahead Task Specific Hazard Assessment

- The contractor, sub-contractors, and lower tier sub-contractors are required to prepare a two-week look ahead Task Specific Hazard Assessment based upon their proposed work

schedule. This Task Specific Hazard Assessment shall be updated on a weekly basis. The contractor shall maintain this document for review by the MESA Construction Safety Lead. All personnel performing work on the site shall be informed of task specific hazards on a weekly basis.

- The Two-Week Look Ahead Task Specific Hazard Assessment shall break the work scope down into *individual activities* based on the planned schedule.
- Additional hazards may arise or be identified as the work is performed that are not addressed in the Hazard Assessment. Therefore, these hazards along with their corrective actions shall be amended in the Two-Week Look Ahead Task Specific Hazard Assessment.

4.052 Daily Safety-Based Work Plan

The contractor and subcontractor supervisory personnel on the MESA Project are responsible for completing a daily safety-based work plan prior to any work activity. The Daily Plan shall be updated any time there is a change in the workforce, work condition, scope of work, or work location. Worker involvement shall be evident in this process.

The contractor shall communicate the hazards of the work activity and identify protective measures to the worker and to other personnel that may be affected. After completion of work, the contractor shall make notes on the daily plan about what could have been done better/safer and shall maintain it and implement it in future work planning.

If the work conditions, on which the work activity is based upon, change, task will be suspended until the new scope of work has been identified and amended. The MESA Construction Safety Lead will periodically conduct unannounced reviews of this process.

Note: The information garnered during the daily safety-based work planning shall be used as part if the Daily Toolbox Training. (See Section 6.3 of this document)

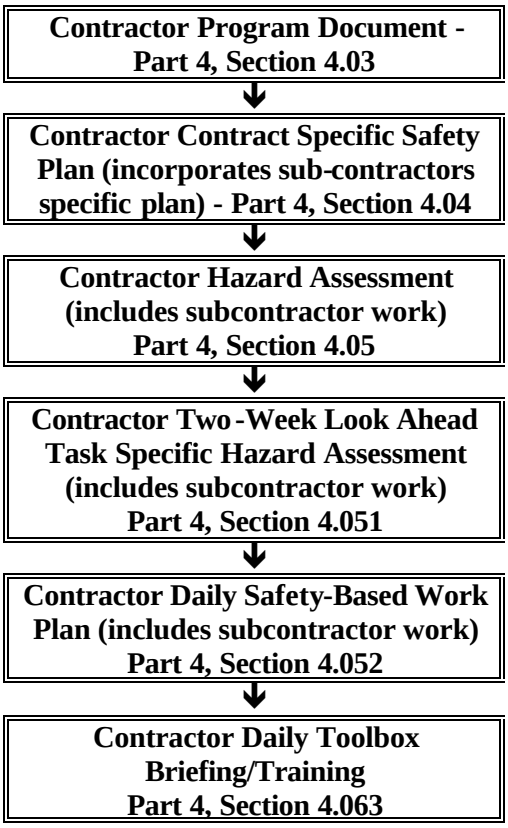
4.053 Safety Based Task/Work Plan Training

Contractor's who perform work on the MESA Project are required to train anyone performing in a supervisory role (including subcontractors) as to the implementation and preparation of safety based work plans. This training will tie directly to the Daily Safety-Based Work Plan (See Part 4, Section 4.052). The Contractor shall provide the outline for this training and maintain records of its completion for review by the MESA Construction Safety Lead.

Work Plans (WP) are required for all work. All supervisory personnel directing workers shall be trained to apply this process prior to beginning work.
In addition, contractor shall provide a means and/or method of field identification of successful completion of this training. An example of this could be an easy to spot badge, or hardhat sticker or even a distinctively colored hardhat.

The following chart depicts the flow of contractor's required Safety and Health Documentation with referenced sections of this specification.

4.054 Flowdown of Contractor's Required Safety & Health Documentation



The Contractor shall evaluate all tiers of sub-contractors contract specific safety plan and shall update the Contractor's Contract Specific Safety Plan (CCSSP) prior to the subcontractor performing work. The updated plan will be submitted to the SDR within 10 workdays of beginning work. The General Contractor's evaluation criteria shall be accepted as a part of the CCSSP by the MESA Construction Safety Lead.

4.06 MESA SPECIFIC ORIENTATION / SAFETY & HEALTH TRAINING

4.061 Site Orientation Training

All onsite employees will be required to attend and participate in the Contractor developed and delivered SNL/NM Site and MESA Project-specific training. The purpose of the training shall be to provide an overview of the MESA project site, general hazards, access control procedures, emergency procedures, and basic roles and responsibilities.

This is the initial step in the site access process for all personnel performing work on the MESA Project Site. No applications for access badges will be approved without proof of completion of this orientation *and the OSHA issued 10 Hour Construction Safety and Health Card*. The contractor shall maintain documentation of the site orientation training for review by SNL/NM. In addition, all personnel on the project shall be required to participate in the contractor developed and delivered worksite safety and health orientation training. This training will be in

part and conjunction with the general MESA site orientation training developed and implemented by the MESA Construction Safety Lead, and is required prior to badging.

4.062 OSHA 10-Hour Training

All contractor and lower tier subcontractor employees working on the MESA Construction site shall provide proof of the OSHA 10-Hour Outreach training to the SDR. (*Copy of the OSHA issued 10-Hour Construction Safety and Health Card is required for access badge application during the Site Orientation Training*)

Training documentation shall be maintained by the contractor for SNL/NM review, and must include the date of the training, the name of the instructor who performed the training, and the length of the training course (i.e., 10-, 30-hr. etc.).

4.063 Daily Toolbox Briefing/Training

All contractor personnel shall participate in a daily toolbox briefing/training exercise to review observed potential jobsite hazards, corrective actions, and general review of the work in progress. The information derived from the MESA daily safety-based work plan shall be used during the toolbox training. (See Daily Safety-Based Work Plan, Part 4, Section 4.052 of this document). This activity shall be conducted by the cognizant superintendent/foreman (contractor or sub-contractor).

4.064 Specific Training

Specific training (i.e., forklift, scaffolding, confined space, trenching, etc.) requirements as requisite by the contractor's contract specific Safety and Health Plan and OSHA shall be documented and subject to audit review by MESA Construction Safety Lead.

The following training matrix indicates milestones for required training.

Training Matrix Table

Milestone	Must be completed by:	Verification
Site Orientation Training	Each construction worker *prior* to beginning work on project site(s)	Contractor ES&H Officer
OSHA 10 Hour Outreach Training	Each construction worker *prior* to receiving project badge and beginning work on project site(s)	Contractor ES&H Officer
Daily Toolbox Training	Contractor/Subcontractor Foreman/Supervisor - On a daily basis	Sandia Construction Observer, CM, MESA Construction Safety Lead

4.07 SAFETY MEETING AND COMMUNICATIONS

4.071 Safety Representatives Meeting

The MESA Construction Safety Lead/MESA Inspection Lead shall conduct Safety Representative Meetings periodically at a minimum, monthly to discuss safety issues that are

affecting the project. Each contractor, sub-contractor is responsible for sending at least one representative to this meeting.

Site-specific issues and lessons learned as well as DOE/Industry wide lessons learned would be addressed. Additionally, Safety Star awards and OSHA deficiency notices would be reviewed.

4.08 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition. PPE shall be deemed necessary wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Personnel working on the MESA project site shall comply with OSHA Standard 29 CFR 1926 Subpart E - *Personal Protective and Life Saving Equipment.* The MESA project construction site specifically requires the following PPE:

1. Head Protection - (Job specific class rating requirements will apply). MESA Construction Sites shall be designated 100% hardhat areas. All hard hats shall be worn bill forward - the **only exceptions** shall be approved by the MESA Construction Safety Lead - American National Standards Institute (ANSI) Z89.1
2. Ankle high, safety-toed footwear - ANSI Z41.
3. Safety glasses with rigid fixed side shields - ANSI Z87.1.
4. Orange reflective safety vests
5. Protective gloves, including Kevlar glove-liners under outer leather gloves, when handling sharp materials or equipment and when working in or handling sheet metal (i.e., ductwork,), and cutting tools. The MESA Project shall be designated a 100% “glove” project. *Note: Additional PPE may be required dependent upon specific job hazards.*
6. Long pants and sleeved shirts (short pants are not be permitted)
7. Appropriate hearing protection as dictated by the work task

All visitors to the MESA Construction site(s) shall wear:

- Approved hardhats
- Approved safety glasses with side shields
- Sturdy and durable work boots or shoes (high heeled or athletic shoes such as tennis shoes, running shoes, clogs, or sandals are not acceptable)
- Orange reflective safety vests

4.09 HAZARDOUS MATERIALS MANAGEMENT

All hazardous material storage shall, as a minimum comply with OSHA Standard 29 CFR 1926, Subpart H - *Materials Handling, Storage, Use, and Disposal.* In addition, the contractor shall comply with the following requirements:

Each contractor shall submit the following to the MESA Construction Safety Lead who coordinates with the SNL/NM FESH Industrial Hygienist (IH) contact at least 10 working days prior to delivery of any hazardous materials or chemicals to the project. The contractor shall use a Chemical-Use form to outline the following:

1. List of hazardous materials or chemicals to be used on the project.
2. Total quantity required for completion of the project.
3. Scheduled delivery dates for each material or chemical.
4. MSDS for each material or chemical.
5. Special storage and handling instructions for each material or chemical.

Hazardous materials and chemicals shall be delivered in quantities to sustain field operations for no more than one week, unless specifically approved in advance by SNL/NM FESH IH. All hazardous materials and chemical containers shall be marked and properly labeled. (See Part 1, Section 1.12)

Storage

The MESA Construction Safety Lead shall approve the designation of a hazardous material and chemical storage area. The Contractor ES&H Officer will manage the area. This area will be separated for flammable and non-flammable materials or chemicals.

Additional segregation for materials or chemicals that might react to each other will be provided as necessary.

Each contractor is responsible for the unloading, placing in storage, and retrieval from storage, any materials or chemicals that they have had delivered to the project. In addition, each contractor is responsible for the removal and recycling (where possible) of empty containers, and unused materials. **Note: Delivery personnel for hazardous materials are subject to the same PPE requirements as project personnel.**

Recycling of Solid Waste Materials

Each contractor working on the project will be required to look for opportunities for recycling of waste materials from their operations. The contractor shall incorporate additional requirements identified in the contract addressing sustainable design and the management of construction waste material. (See Special Specification 01505S, *Construction Waste Management*)

4.10 FIRE PREVENTION

An SNL/NM Hot Work Permit is required for all hot work operations. Hot work operations include cutting, welding, brazing, soldering, roofing, or road work using tar pots, torches and hot air guns used in applying roofing, thermal spraying, use of open fires for any purpose, use of

portable heaters, or other similar activity. The requirements of the Permit shall be followed without exception. The contractor or SCO shall contact SNL/NM Fire Protection to coordinate, and arrange for obtaining the permits. (See Part 1, Section 1.05 D)

4.101 Smoking

Smoking is strictly prohibited at the construction site or in the vicinity of hazardous operations or combustible or flammable materials. "No Smoking" signs shall be posted in these areas. Smoking shall only be allowed in designated areas, outside the construction site. The contractor shall be responsible for the designation of these areas.

4.11 EXCAVATION, TRENCHING, AND SHORING

The contractor shall provide a trained trenching/excavation competent person. The competent person shall analyze all trenches and excavations **regardless of depth** for potential hazards. The depth of trenches and excavations shall not be a default measurement for hazard evaluation or control. The task being performed in the trench of excavation shall be primary in the evaluation.

All soil conditions on the MESA Project shall be considered Type C (relatively unstable), unless otherwise determined and documented by a professional soil engineer provided by the contractor (at no additional cost to SNL/NM). (OSHA STD 29 CFR 1926, Subpart P - Excavations)

4.12 FALL PROTECTION

Whenever fall hazards exist at heights of 6 feet or more are present, fall protection systems will be required. There are no exceptions by subcontractor, trade, or work process to this requirement. When connection type systems are employed, the 100% tie off concept shall be employed.

The implementation of the Safety Monitoring fall protection system will only be accepted as a last resort. If used, the contractor shall develop and use a formal written program, and shall submit to the MESA Construction Safety Lead for acceptance. (OSHA STD CFR 29 1926, Subpart M - Fall Protection)

4.13 HOISTING AND RIGGING - CRANE SAFETY

Cranes - Hoisting and Rigging Activities - (See Part 3, Section 3.02)

SNL requires compliance with the Federal Aviation Administration (FAA) boom height restrictions. Crane boom height restrictions are initiated by the contractor and based on distance from the runway of the Albuquerque International Airport. The Contractor shall initiate a ‘Request for Aeronautical Study” to be completed by the FAA. Form 7460-1 “Notice of Proposed Construction or Alteration” shall be submitted by the Contractor to the FAA, Southwest Region, Fort Worth, Texas. The SCO shall verify that all FAA requirements are adhered to.

In addition, Sandia Construction Observers (SCO) performing Cranes and Lifts Inspections shall observe compliance with the following requirements by the contractor prior to allowing them to perform lifts at Sandia National Laboratories:

1. Upon arrival of the crane to Sandia National Laboratories, the SCO shall inspect the crane and record the findings of the inspection on the Facilities Construction Acceptance Mobile Crane Periodic Inspection Form. The Contractor shall correct all deficiencies identified on the form prior to commencing the lift.
2. The SCO shall verify that the crane operator has:
   a) A valid State of New Mexico Construction Industries Division Crane Operator's License, or
   b) Certification in his possession that he/she has completed an industry-recognized, in-house training course based on American National Standards Institute (ANSI) standards for hoisting operators, and who is employed by the entity that taught the training course or contracted to have the training course taught.
   c) 10-hour OSHA Card
3. The SCO shall verify if a lift plan was required per the two-week look ahead and Contract Specific Safety Plan performed for the project. If a lift plan is required, the SCO shall review the plan with the crane operator, competent person for the lift, construction superintendent, and any other persons the contractor and SCO deem necessary prior to commencing with the lift.
4. The SCO and crane operator shall review the lift area and crane set-up area for any additional hazards, and shall not proceed until the SCO is satisfied that all hazards have been mitigated following the Integrated Safety Management System (ISMS) guidelines. (See OSHA STD 29 CFR 1926, Subpart N - Cranes, Derricks, Hoists, Elevators, and Conveyors)
5. At a minimum, the SCO shall observe lifts that meet the following criteria:

   - Lifts greater than 85% of the crane's rated capacity, a load of 20 tons or more, or a tandem lift (or revised capacities, if any)
   - Significant risk of the release of radioactive material, chemicals, other hazardous material, or other undesirable conditions
   - Potential risk of personal injury or significant adverse health impact
   - Work in confined areas or sections of the labs where slight miscalculations could jeopardize future operations or the safety of an employee or facility
   - If the lift requires exceptional care in handling because of its size, weight, close tolerance installation, high susceptibility to damage, or other unusual features (see Attachment G).

6. Once the crane leaves Sandia National Laboratories and returns at a later time, the crane shall be re-inspected. If the crane is on site for the duration of a project, the crane should be re-inspected by the contractor weekly as a minimum, and depending on the type of lifting and work activity taking place, the level of inspection may need to be increased.

4.14 AERIAL LIFT SAFETY TRAINING

1. General – SNL/NM requires compliance with ANSI/SIA A92.6 – 1999 “Self Propelled (Mobile) Elevating Work Platforms” (Scissor-lifts). The employer shall ensure that operators of scissor lifts are trained, with formal instruction, practical training and evaluation of operator’s performance in the workplace. All training shall be site and equipment specific.

2. Equipment Specific – Instruction that enables the trainee to become a qualified person regarding the task at hand, including knowledge of potential hazards associated with the use of specific equipment.

3. Inspection Process – Each employer or operator shall perform a workplace inspection (including visual inspection and functional test) before and during use. The user shall check the area for the following types of hazards: drop-offs or holes, bumps and floor obstructions, debris, overhead obstructions and high-voltage conductors, hazardous locations, inadequate surface and support to withstand all load forces imposed by the lift, wind, and weather conditions, presence of unauthorized personnel, or other possible unsafe conditions.

4. Equipment Acceptance – Acceptance of equipment will be a determination based upon workplace inspection, maintenance records, and functional testing .

ATTACHMENT A: JOBSITE EVALUATION CHECKLIST

ATTACHMENT B: RADIOACTIVE SOURCE ACTIVITIES REQUIRING SNL CONTROL

ATTACHMENT C: SNL FORM SF 2050P "REPORT OF OCCUPATIONAL INJURY/ILLNESS"

ATTACHMENT D: RESCUE OF PERSONNEL IN CONFINED SPACES AT SNL/NM

ATTACHMENT E: CONFINED SPACE PERMIT SIGN-IN/SIGN-OUT SHEET

ATTACHMENT F: LIST OF ACRONYMS

ATTACHMENT G: MOBILE CRANE INSPECTION FORM

ATTACHMENT H: SANDIA CONSTRUCTION SAFETY DEFICIENCY NOTICE AND FLOW CHART